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promoted to Chief of the Library and Archives Division, at a salary of $1800 per annum, the promotion taking effect July 1, 1897. Dr. Martin has just been elected a member of the "Circolo Matematico di Palermo," Italy.

We regret to announce the death of Prof. B. F. Burleson, which occurred at his home, in Oneida Castle, New York, on December 2. Mr. Burleson was born in Stockbridge, July 7, 1835, but had resided in Oneida Castle for many years, where he was highly esteemed. For a number of years he occupied the position of Principal of the Union School, and in this position he proved a most successful and acceptable teacher. He was extremely fond of mathematics and was very expert in solving difficult problems. For many years he was a frequent contributor to most of the mathematical journals published in this country, and enjoyed a wide acquaintance with well-known mathematical teachers in various parts of the country. Five years ago he was stricken with paralysis and had since suffered from several strokes, which was the final cause of his death. Mr. Burleson was one of those promising but unfortunate men who possessed only the advantages of a common school education. His knowledge of mathematics was obtained by self application and in this way he became a very able analyzer of difficult mathematical problems as his solutions of many difficult problems will show. Had he possessed the advantages of a mathematical course in one of our leading universities, his influence would undoubtedly have been felt in a larger way. All honor is due him for what he made of the opportunities he possessed and the advantages afforded him. There survive him, his widow, a daughter, and one son, George Burleson, of Buffalo, and a sister residing at Oneida Castle.

BOOKS AND PERIODICALS.

Elements of the Differential and Integral Calculus. By William S. Hall, E. M., C. E., M. S., Professor of Technical Mathematics in Lafayette College. 250 pages. Price, $2.25. (1897). New York: D. Van Nostrand.

Great activity has been displayed within the last year in the production of texts on the subject of the Calculus. Among the more recent books on this subject, Professor Hall's treatise is entitled to very favorable consideration. The two branches of the Calculus are treated together to great advantage. The formulas for differentiation are established by the method of limits, but the method of infinitesimals is also explained, and the differential notation used when there is advantage gained by it. The numerical problems illustrating the text and showing applications in engineering practice is an excellent feature of the book. The table of integrals for convenience of reference is more extended than is usual in books of the same scope. Throughout the work there is a great compactness both in the methods and form of treatment, and we find more subjects presented than in most of the elementary texts. The chapter on Differential Equations is one of the best features of the book.

The Calculus for Engineers, with Applications to Technical Problems. By Professor Robert H. Smith.Pages 176. Price, $3.00. 1896. London: Charles Griffin and Company. Philadelphia: J. B. Lippincott Company.

The aim of this treatise is to introduce the student at once to the more important uses of the Integral Calculus, and incidentally to those of the Differential Calculus. The development of the *rattionale* of the subject is based on essentially *concrete* conceptions. Considerable use is made of the graphic method where admissable. The effort has been made to make the treatment less formal than usual, and the meaning and use of results is illustrated by many applications to mechanics, thermodynamics, electrodynamics, problems in engineering design, etc. One of the most distinctive and important features of the book is the very complete and extended Classified Reference Tables of Integrals and Methods of Integration, which occupy 42 pages. The chapter on the integration of Differential Equations will prove an important aid in pointing out methods of dealing with various classes of problems. The book has some practical features that will especially recommend it to engineers and physicists. J. M. C.

The Tutorial Trigonometry. By William Briggs, M. A., F. R. A. S., and G. H. Bryan, Sc. D., F. R. S. London: W. B. Clive. New York: Hinds & Noble. Pages 326. Price, $1.00. 1897.

This latest issue in the series of Tutorial texts is a very satisfactory book. The definitions of the trigonometric functions is wisely introduced early. Most of the articles are written with commendable clearness, and it is only in minor points that we have noticed any defects or inaccuracies in the book. The chapter on the ambiguous case in the solution of triangles is especially clearly and concisely stated. The large number of well-chosen examples attached to each chapter add much to the completeness of the book for class use. The relative importance of subject-matter is indicated by the use of different type, which somewhat mars the appearance of the printed page, but this is a slight objection as compared with the advantage gained in clearness and in effective presentation of the subject to students. While very much after the order of the long list of trigononometries now in use, this book seems to cover about the right ground and bears the marks of a well-constructed text-book. J. M. C.

Regular Points of Linear Differential Equations of the Second Order. By Maxime Bôcher, Ph. D., Assistant Professor of Mathematics in Harvard University. Pages 23. 1896. Cambridge: Harvard University Press.

This excellent little treatise is intended quite as much for students of mathematical physics who may not be able to carry the subject further than is here done as for those intending to make a more extended study of the modern theory of linear differential quotations. J. M. C.

Past and Present Tendencies in Engineering Education. By Mansfield Merriman, Professor of Civil Engineering, Lehigh University, South Bethlehem, Pennsylvania.

This pamphlet of 17 pages, reprinted from Volume IV of the Proceedings of the Society for Promotion of Engineering Education, contains the instructive presidential address of Professor Merriman before that society, at its meeting on August 20, last.

Macfarlane on Discharge of Condenser. This pamphlet contains the interesting discussion of Dr. Macfarlane's paper, which was presented at the meeting of the American Institute of Electrical Engineers in May last, in which Mr. Steinmetz, Dr. Kennelly, and Dr. Perrine took part, and also the communicated reply of Dr. Macfarlane.

Numerical Problems in Plane Geometry. By J. G. Estill, of the Hotchkiss School, Lakeville, Conn. 144 pages. 1897. New York: Longmans, Green & Co.

These problems are meant to be used with other geometries. The book contains a graded set of problems on the five books of geometry, as the division into Books is generally made. The use of the metric system is begun at the very first. The problems, and the entrance papers in the latter part of the book, seem to have been selected with great care and excellent judgment. The discussion of logarithms, and the explanation of their use, and the use of the table, have been clearly made. In as much as some knowledge of the metric system and the ability to solve numerical problems in plane geometry is now required for admission to most colleges, this little treatise should be especially acceptable to preparatory schools. J. M. C.

Euclid: Books I.—IV. By Rupert Deakin, M. A., Headmaster of King Edward's Grammar School, Stourbridge. Price, 70 cents. 1897. London: W. B. Clive. New York: Hinds & Noble.

This edition of Euclid was prepared for the well-known "Tutorial Series." The notes at the end of each book supply excellent comments upon and analysis of the propositions, especially aiding the student to group together propositions in which similar methods of proof are used. Special care has been taken to encourage the working of "riders," and a section is given in which methods of attack are suggested, while exercises on the various methods have been interspersed throughout the text. The book is attractively printed, and should furnish an important aid in teaching elementary Euclid. J. M. C.

School Geometry. By J. Fred Smith, A. M., Principal of Iowa College Academy. 320 pages. 1897. Chicago: Scott, Foresman & Co.

While there is no special novelty or marked improvement in this on other text-books of like purpose and scope, yet it is well written and has several good features. The subject is approached gradually, and as far as may be the abstract through the concrete; it is more elementary than many of the books in common use, and in the earlier part separate figures indicate the successive steps of a construction instead of one figure for all the steps combined. The equation is early introduced and frequently used. Emphasis is placed upon the importance of original work, and a large number of theorems and problems are given as additional exercises. The side references, usual in other books, showing the authority for each step in a demonstration are omitted, but we doubt if this feature will be much in its favor with most teachers. The book is well printed, but not very neatly nor substantially bound. J. M. C.

Infallible Logic. A Visible and Automatic System of Reasoning. By Thomas D. Hawley, of the Chicago Bar. 8vo. 660 pages. Full Leather Binding. Price, $5.00. Chicago: The Dominion Publishing Co.

Standard books are ever welcome when they come to us in forms and bindings representing all the embellishments of the art of bookmaking. Such a book is *Infallible Logic* published by The Dominion Company, Chicago, a copy of which has just come to our desk. The contents are well arranged, the illustrations are fine, the print is clear and neat, and the binding is superb. The Dominion Company is forging ahead as the leading western publishing house making a specialty of fine subscription books. Having salespeople in nearly every nook of the country, the company enjoys a large and growing trade. As this company has a known reputation for liberality towards its agents and fair treatment of them, an agency in this community for the above book, or some other published by this company, would be a source of considerable profit to the one fortunate enough to secure it. Interested readers should write the company for full particulars.

Elementary Arithmetic. By William W. Speer, Assistant Superintendent of Schools, Chicago. 314 pages. 1897. Boston : Ginn & Company.

To the first book of this series we have previously directed special attention. The author emphasizes the importance of early bringing into view the definite relations of quantity. The idea of relative magnitude is made the basis of treatment in this new series of books. Hence simple ratios are made the key to the solution of all problems. The treatise is sufficiently different from others of a similar purpose to give it field for trial, and in the hands of *competent* teachers we predict it will give profitable results.

J. M. C.

The American Monthly Review of Reviews. An International Illustrated Monthly Magazine. Edited by Dr. Albert Shaw. Price, $2.00 per year in advance. Single numbers, 25 cents. The American Monthly Review of Reviews Co., 13 Astor Place, New York.

The January number of the *American Monthly Review of Reviews* is one of the best issues in the history of that magazine. From cover to cover it is thoroughly "live," alert, and forceful. The opening editorial department of "The Progress of the World" gives a clear and exhaustive New Year's summary of political conditions in both hemispheres at the threshold of 1898. The elaborate article on "The Future of Austria-Hungary," by an Austrian, is by all odds the best account yet given in the English language of the warring forces which threaten to undermine the dual monarchy of central Europe; Mr. Charles A. Conant's clean-cut analysis of the present demands for currency reform in the United States is something that no practical man of affairs should fail to read; Dr. W. H. Tolman's summing up of the municipal progress of New York City under Mayor Strong is just what is needed at this time as an encouragement of efforts for civic betterment everywhere; Lord Brassey's remarkable paper on "The Position of the British Navy," with Assistant Secretary Roosevelt's comments, is full of food for thought when read in connection with the compact digest of the United States annual naval report, which follows, and the review of Captain Mahan's new book; two noteworthy letters of Count Tolstoi on the doctrines of Henry George, one addressed to a German disciple of George and the other to a Siberian peasant, are also published in this number. Besides these important and spirited special features, the magazine's regular departments of "Current History in Caricature," "Leading Articles of the Month," "Periodicals Reviewed," and "New Books" cover such timely topics as Hawaiian annexation and the great strike in England.

The Cosmopolitan. An International Illustrated Monthly Magazine. Edited by John Brisben Walker. Price, $1.00 per year in advance. Single number, 10 cents. Irvington-on-the-Hudson.

Among the leading articles in the January number are the following: Stephen Girard and His College; The Real Klondike; Harold Frederick's "Gloria Mandi"; and A Brief History of our late War with Spain.

The Arena. An Illustrated Monthly Magazine. Edited by John Clark Ridpath, LL. D. Price, $2.50 per year in advance. Single number, 25 cents. Boston : The Arena Co.

The Open Court. A Monthly Magazine devoted to the Science of Religion, the Religion of Science, and the Extension of the Religious Parliament Idea. Edited by Dr. Paul Carus ; T. J. McCormack, Assistant Editor ; E. C. Hegeler, and Mary Carus, Associate Editors. Price, $1.00 per year in advance. The Open Court Publishing Co., Chicago, Ill.

The following periodicals have been received : *Journal de Mathématiques Élémentaires*, (1er Decembre 1897) ; *American Journal of Mathematics*, (October, 1897) ; *The Mathematical Gazette*, (October, 1897) ; *L'Intermédiare des Mathématiciens*, (Novembre 1897) ; *Miscellaneous Notes and Queries*, (October, 1897) ; *The Kansas University Quarterly*, (October, 1897) ; *The Monist*, (October, 1897) ; *The Educational Times*, (December, 1897) ; *Science*, (Nos. for the year to September 24, 1897) ; *Bulletin of the American Mathematical Society*, (November, 1897) ; *The Ohio Teacher*, (November, 1897).

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B. F. FINKEL, J. M. COLAW, Editors.

SOME ERRATA IN NO. 11.

Page 282, line 2, for "Ay" read Ay^2.

Page 282, line 17, for "$(2x-m^2$" read $(2x-m)^2$.

Page 283, line 5, for "$+b$" read $+b^2$.

Page 286, supply letter D in the figure.

Page 286, line 14, insert *will* before *OED*.

Page 286, line 5 from bottom, for "$\frac{1}{2}h$" read $\frac{1}{4}h$.

Page 287, line 17, for "27" read 27/2.

Page 288, line 2, for "R^3" read R^2.

Page 288, line 11, for "$\int_{-\sqrt{r^2-x^2}}^{-\sqrt{r^2+x^2}} zdy$" read $\int_0^r dx \int_{-\sqrt{r^2-x^2}}^{+\sqrt{r^2-x^2}} zdy$.

Page 288, line 12, for "$\int_0^s$" read $\int_0^r$.

Page 288, line 18, for "OF" read OB.

Page 288, line 19, for "$(2br/x)$" read $(2br/h)$.

Page 288, line 20, for "O" read 0.

Page 290, last line, for "sume" read sums.